



**Carl Pechman, Ph.D.**  
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## EDUCATION

Ph.D.      *Resource Economics*, Cornell University, Ithaca, New York  
M.S.      *Applied Econometrics and Quantitative Analysis*, Cornell University  
B.A.      *Biology*, Cornell University

## PROFESSIONAL HISTORY

2018 -      **Director**, National Regulatory Research Institute, Washington, D.C.  
2009 - 2018 **Economist/Supervisory Energy Industry Analyst**, Federal Energy Regulatory Commission, Office of Energy Policy and Innovation.  
2013-2017 **Senior Electricity Advisor**, United States Department of Energy, Office of Energy Policy and System Analysis (on detail from the FERC – two stints), Washington, DC. (Q clearance).  
1999-2009 **President and Founder**, Power Economics, Inc., Santa Cruz, Ca.  
1997-99    **Director**, LECG, Emeryville, Ca.  
1979-97    **Supervisor of Energy and Environmental Economics**, New York Public Service Commission, Albany, NY.

## EXPERIENCE AND ACCOMPLISHMENTS

### *Industry transformation*

- Analyst/co-author of U.S. Department of Energy Quadrennial Energy Review (QER) – 1.1: *Transforming U.S. Energy Infrastructures in a Time of Rapid Change* and 1.2: *Transforming the Nation's Electricity System*.
- Analysis and papers on the future of the distribution utility and utility business model, including new planning paradigms, empowering customers and utilities' role on the customers' side of the meter.
- Developed concept of "integrated electricity security planning" proposed in QER 1.2.
- Developed concept of a "Smart City Audit" adopted for implementation by the New Orleans City Council.
- Author: *Regulating Power: The Economics of Electricity in the Information Age*, Kluwer Academic Publishers. 1993 – which included the first published analysis on the importance of locational based generation reserve requirements; analysis of information structures as impediments to industry transformation and promoted strategies for harmonizing state and federal regulation.
- Led multi-party technical process that resulted in the blueprint for the development of the New York Independent System Operator.
- Author of white paper on the adoption of affiliate codes of conduct for the Edison Electric Institute.
- Advisor to the City of Santa Cruz School System for Purchase Power Agreements to develop 1.5MW of solar photovoltaics. Designed a contract provision that limits power payments to what the school system would have paid had it not developed solar.
- Developed competitive power acquisition strategy for New York City's own load requirements.

- Initiated and managed early development of “Grid Architecture.”
- Advice and counsel to the Puerto Rico Energy Bureau on restructuring the Commonwealth’s bankrupt municipal utility (PREPA) and development of a resilient and resilient electric system.

#### *California/Western Energy Crisis*

- Advisor to Speaker Hertzberg and Speaker pro tempore Keeley of the California State Assembly regarding efforts to resolve the California electricity crisis. Developed regulatory strategy that allowed Southern California Edison to avoid bankruptcy.
- Expert witness for the California Parties and various public and investor-owned utilities in the West, in proceedings before the Federal Energy Regulatory Commission (FERC) related to refunds of charges in real-time markets and modification of long-term contracts, as related to the California energy crisis.
- Analysis, review and testimony on evidence of Enron’s violation of its market-based rate authority, financial fraud, and power market manipulation, including supervision of review and testimony that made the Enron trader tapes public.
- Analysis and testimony providing evidence of market power abuse during the California Energy Crisis
- Author of white paper for the Public Policy Institute of California on the state’s restructuring of utility regulation and resource acquisition in response to the “Energy Crisis.”

#### *Market Structures/Rates*

- Developed method through negotiated and litigated proceedings, and supervised modeling of “Avoided Costs” pursuant to Public Utilities Regulatory Policies Act of 1978 (PURPA) in New York.
- Created “cost effectiveness test” for demand response, relied on by the Supreme Court in affirming FERC Order 745 in FERC v. EPSA.
- Design of market mechanisms for demand response, frequency regulation and renewable integration.
- Design of capacity markets for resource adequacy in New York, New England and California.
- Preparation of cost studies, rate design, incentive rate mechanisms.
- Testimony and analysis on unbundling utility rates.
- Expert witness on inter-relation of market design and market manipulation.
- Empirical analysis and oversight of projects to calculate the Value of Loss Load.
- Design of market mechanisms for maintaining resource adequacy in organized markets.

#### *Grid modernization*

- Initiated, managed development and promoted new paradigm of Grid Architecture.
- Member US DOE Grid Tech Team charting strategic direction of grid modernization,
- Evaluation of changing role of customers on grid and distribution design and operation.
- Analysis of reliability concepts for both operation and maintenance of resource adequacy.
- Policy development of interoperability and small generator interconnection standards.
- Developed concept of “Integrated Electric Security Planning,” to coordinate planning between different jurisdictions responsible for cyber-security standards and protection.

#### *Environmental Analysis*

- Principal NYPSC staff witness on economics of the “need” for energy-related facilities, including coal-fired power plants, electric transmission lines and natural gas pipelines, as well as the re-conversion of coal capable oil-fired generating units to coal in order to reduce oil imports.
- Economics of multi-use resources, such as balancing interests of lake level regulation.
- Responsible for determination of “significance” of regulatory actions pursuant to the New York State Environmental Quality Review Act.
- Analysis of utility compliance of the Clean Air Act Amendments of 1990.
- GHG reduction strategies and their impact on organized electricity markets.

- Analysis of the social cost of carbon and implications for the future of existing nuclear reactors.
- Oversight of project to calculate the environmental costs of electricity.
- Member, President's Pollinator Health Task Force

#### *Modeling*

- Managed implementation and use of production cost modeling at the New York Public Service Commission for evaluating energy efficiency programs, capacity additions and price forecasts.
- Developed early financial models for evaluating nuclear finance and rate recovery.
- Led task force investigating alternative modeling methods for calculating the cost of transmission wheeling.
- Project manager for development of the CCMU – an annually recursive policy scenario analysis policy model that integrated power system operations, utility accounting and costs of meeting environmental objectives.
- Modeling for and review of Integrated Resource Plans and generation expansion proposals and scenarios.
- Review of California Energy Commission load forecasting methods.

#### *Training/Education*

- On-site training programs for Public Utility Commissions
- Development of the Regulatory Training Initiative = a remote training platform on regulation that will be open to regulators, legislators and stakeholders.
- Various courses taught at Cornell University, Adjunct, University of California at Santa Cruz, Skidmore College and Rensselaer Polytechnic Institute.

#### *Study Groups*

- Participant, Aspen Energy Roundtable.
- Agency Representative, New York State Energy Master Plan working group.
- Agency Representative, New York State Governor's Office of Regulatory Reform. Task force on development of a cost-benefit handbook.
- Member, Keystone Dialog on Environmental Externalities.
- Member. Part of a project team sent by the United States Environmental Protection Agency to work with Mosenergo (the Moscow electric utility), and other academics and government officials on developing a strategy for transformation to a market economy.

#### *Stakeholder Relations*

- Consultant to a diverse group of industry stakeholders including: utilities, Independent System Operators, state and federal regulatory agencies, municipalities, attorneys general, environmental groups, and representatives of low-income, commercial building owners and industrial customers.
- Managed modeling efforts based upon stakeholder input.
- Mediated numerous multi-party negotiations.

#### *International*

- Member of USEPA team that worked with Mosenergo (the Moscow electric utility) in preparation for the transition from a planned to a market economy.
- Numerous outreach meetings with international contingents.

### **BOOKS**

*Regulating Power: The Economics of Electricity in the Information Age.* Kluwer Academic Publishers, 1993.

## SELECT PUBLICATIONS AND REPORTS

"Determining the Scope of the Electric Distribution Utility of the Future," Paper published as part of the Smart Electric Power Alliance 51st State Initiative, 2017. <https://sepapower.org/resource/51st-state-ideas-determining-scope-electric-distribution-utility-future/>.

"Modernizing the Electric Distribution Utility to Support the Clean Energy Economy." U.S. Department of Energy White Paper. 2016 <https://www.energy.gov/epsa/downloads/modernizing-electric-distribution-utility-support-clean-energy-economy>.

"Investing in Solar Photovoltaics: A School District's Story." Electricity Journal, with Peter Brown. 2008.

"California's Electricity Market: A Post-Crisis Progress Report." California Economic Policy California Economic Policy, Public Policy Institute of California. 2007. <http://www.ppic.org/main/publication.asp?i=731>

"A Review of the Economic Analysis of the Demand Curve Proposal." Prepared for Multiple Interveners, presented to the New York Independent System Operator. 2003

"Designing an Alternative Form of Regulation for Wyoming." Private report prepared for PacifiCorp. 2003.

"The California Electricity Crisis: A Report to the Building Owners and Managers Association (BOMA) of California." With Miles Bidwell, prepared for Building Owners and Managers Association of California. 2001.

"A Demand Response Will Lower Peak Prices." With Miles Bidwell, prepared for Multiple Interveners for submission to the New York Independent System Operator.

"Retail Competition in New York: A Status Report." Prepared for Utility.com. 2000.

"Developing Codes of Conduct: An Analysis of Parties and Positions." With Robert G. Harris, Edison Electric Institute. 1999.

"Cost-Benefit Handbook: A Guide for New York State's Agencies." Co-author. 1997.

"Exporting Integrated Resource Planning to Less-Developed and Post-Communist Countries." With Marc Ledbetter, David Wolcott and Mark Cherniack, Proceedings ACEEE Study on Energy Efficiency in Buildings, Integrated Resource Planning Volume. 1992.

"Determining the Value of Electricity from Waste-to-Energy Facilities: A Comparison of Pricing Based Upon Avoided Costs and Bidding." Proceedings: Fifth Annual Conference on Solid Waste Management and Materials Policy, 1989.

"The Regulator as Mediator/Negotiator." Proceedings: National Association of Regulatory Utility Commissioners (NARUC) Sixth Biennial Regulatory Information Conference. 1988.

"Equity, Efficiency, and Sulfur Emission Reductions." Public Utility Fortnightly, (paper originally presented at the 1984 Air Pollution Control Association Annual Meeting, San Francisco, California). 1985.

"The Role of Public Utility Commissions in Evaluating Sulfur Emission Reduction Strategies." With William Deehan, Proceedings: NARUC Fourth Biennial Regulatory Information Conference, 1984.

"REVREQCON: A Model for Evaluating the Revenue Requirement of Coal Conversion Expenditures." With Charles Dickson, *Electric Ratemaking*, vol. 1, no. 3. 1982.

"Converting Oil Fired Generating Units to Coal in New York State." With Jack Lebowitz, *Northeastern Environmental Science*, vol. 1, no. 2. 1982.

## SELECT PRESENTATIONS

"The Smart City Audit as a Building Block for Developing Smart Cities," City Council of New Orleans Smart and Sustainable Cities Committee, December 2018.

"Administration Activities to subsidize coal and nuclear," NARUC Electricity Committee. 2018.

"Overview of the History and Practice of Electric Regulation," Blue Ribbon Task Force *Strategizing an Electric Energy Policy and Regulatory Framework in Puerto Ric*, 2018.

"QER: Status Report," Presented to EPRI Power Delivery & Utilization Sector Council. 2015.

"The Agile Utility: Aligning Consumer Demand with Distributed Generation," Georgia Tech Enterprise Innovation Institute. 2014.

"Realizing the Value of Transactive Energy," Plenary Speaker, 2014 Transactive Energy Conference. 2014.

"A New Paradigm for Electricity Distribution: The Forces for Change" presented at Joint EPRI and EEI workshop "Role of the Electric Distribution System in an Integrated Grid." 2014.

"FERC innovations in market design and the future of solar." Plenary talk at SolarTech 2012 4th Annual Solar Leadership Summit. San Jose, Ca. 2012.

"Transformational Changes and Resource Planning – looking "back to the future" – or forward to "where no one has gone before?" Keynote address - EUCI, Integrated Resource Planning Conference. 2010.

"Enron in the West" Presented at the 21st Annual Western Conference of the Advanced Workshop in Regulation and Public Utility Economics, sponsored by Rutgers University, 2008.

"Market Structure and Design Issues Affecting California Electric Sector" Power Association of Northern California. April, 2008.

"Lessons on Deregulation: the US Experience" Allahabad University Department of Economics seminar. February, 2008.

Wrap-up speaker at "Forming Expectations: the Emerging Capacity Markets of the Northeast and Mid-Atlantic" sponsored by the Northeast Energy and Commerce Association. 2007.

"Territoriality of Electricity" Presented at the American Association of Geographers, Annual Meeting, San Francisco, Ca. Association of American Geographers. 2007.

"The Policy Response to the California Energy Crisis – Is it Adequate?" Presented at the 19th Annual Western Conference of the Advanced Workshop in Regulation and Public Utility Economics, sponsored by Rutgers University, Graduate School of Management Center for Research in Regulated. 2006.

"Regulatory Implications of the California Energy Crisis." Invited Presentation to the Public Policy Institute of California. 2005.

"Is FERC's Plan for National Electric Transmission Grid Equitable? Should State Regulatory Oversight be Strengthened?" Presented at National Black Caucus of State Regulators. 2003.

"Managing Regulatory Risk." Presented at EUCI Enterprise-Wide Risk Management Conference. 2002.

"The Regulatory Treatment of Power Costs and Customer Vulnerability to Market Power." Presented at the 15th Annual Western Conference of the Advanced Workshop in Regulation and Public Utility Economics, sponsored by Rutgers University, Graduate School of Management Center for Research in Regulated Industries. 2002.

"The Energy Crisis & Commercial Real Estate: Winning Lower Prices and Increased Reliability." Building Owners and Managers Association's National Advisory Council Spring Conference. 2001.

"The Changing Role of Regulation in Competitive Electric Markets." Presented at the Independent Power Producers of New York, 13th Annual Spring Legislative Conference. Albany, New York. 1999.

"Retail Competition in New York's Electric Power Market." Presented at Competitive Power Sourcing for Industrial Customers, sponsored by InfoCast. Chicago, Illinois. 1995.

"Environmental Implications of Electric Market Transformation." Presented at New York State Network for Economic Research, Research-in-Progress Conference. 1994.

"State Regulatory Perspectives on Emissions Trading." Presented at SO2 Emissions Trading in the Electric Utility Sector, sponsored by, The Wharton School and Philadelphia Electric Company. 1993.

"The Evolution of Integrated Resource Planning: Incorporating Environmental Externalities." Invited paper presented at the Third USSR/US Bilateral Conference on the Use of Economic Instruments in Environmental Protection. Moscow, USSR. 1991.

"The Economics of Environmental Dispatch." Presented at the conference DSM and the Global Environment, sponsored by the US Environmental Protection Agency, The Edison Electric Institute, and the New York State Energy Research and Development Authority. 1991.

"Model Access and Administratively Determined Prices." Presented at the Eighth Annual Conference of the Rutgers University Advanced Workshop in Regulation and Public Utility Economics. 1989.

"Information Cartelization and the Control of Regulation." Presented at the Allied Social Science Association Annual Meeting. 1988.

"Electric Capacity Planning in New York: Model Limited Choice and Inefficient Investment in Reliability." Presented at the Sixth Annual Conference, Rutgers University Advanced Workshop in Regulation and Public Utility Economics. 1987.

"Using Production Costing Models to Estimate PURPA Buyback Rates: The New York Experience." National Association of Regulatory Utility Commissioners (NARUC) Fifth Biennial Regulatory Information Conference. 1986.

"Estimating Long Run Avoided Costs for New York State Electric Utilities." Fourth Annual Conference, Rutgers University Advanced Workshop in Public Utility Economics and Regulation. 1985.

"The Future of Energy Imports to the Northeastern United States." Presented at the Corpus Energy Group – Energy Pricing Conference. Toronto, Canada. 1983.

"An Estimate of the Capacity Cost of the Shoreham Nuclear Power Plant." Presented at the American Association for the Advancement of Science Annual Meeting. Detroit, Michigan. 1983.

## TESTIMONY

Extensive testimony in federal court, bankruptcy court, state courts and before the FERC and various state PUCs on a wide variety of electricity issues including, market design, electric ratemaking (both determination of revenue requirements, cost studies and rate design), resource adequacy, prudence of utility power acquisition, the western electricity crisis, determination of avoided costs, power contracts and damages, investor confidence and finance and siting (generation, transmission and gas pipelines).

## TESTIMONY AS INDEPENDENT EXPERT

### Western energy crisis

#### Critique of Federal Energy Regulatory Commission market mitigation proposal

Affidavit prepared for the California Assembly before the Federal Energy Regulatory Commission (Dockets No. EL00-95-012, No. EL00-98-000, No. RT01-85-000, No. EL01-68-000) (2001).

#### Analysis of and remedies for Enron gaming behavior

Testimony presented on behalf of the Snohomish County Public Utilities District before the Federal Energy Regulatory Commission in Enron Power Marketing, Inc. and Enron Energy Services, Inc. (Docket No. EL03-180-000 et al.) (2004, 2005).

#### Demonstrations of market power abuse

Testimony on behalf of the City of Tacoma and the Port of Seattle before the Federal Energy Regulatory Commission in Puget Sound Energy, Inc., et al., v. All Jurisdictional Sellers of Energy and/or Capacity at Wholesale Into Electric Energy and/or Capacity Markets in the Pacific Northwest, Including Parties to the Western Systems Power Pool Agreement (Docket No. EL01-10-005) (2002).

Testimony presented on behalf of the California Parties before the Federal Energy Regulatory Commission in Puget Sound Energy, Inc. Complainant, v. All Jurisdictional Sellers of Energy and/or Capacity at Wholesale into Electric Energy and/or Capacity Markets in the Pacific Northwest, Including Parties to the Western Systems Power Pool Agreement (Docket Nos. EL01-10-000, EL01-10-001) (2001).

#### Method for calculating Mitigated Market Clearing Prices (MMCPs)

Testimony presented on behalf of the California Parties before the Federal Energy Regulatory Commission in San Diego Gas & Electric Company, Complainant, v. Sellers of Energy and Ancillary Services into

Markets Operated by the California Independent System Operator Corporation and the California Power Exchange (Dockets EL00-95-045, EL00-98-042) (2002).

Effect of contract modification on investor confidence

Testimony presented on behalf of PacifiCorp before the Federal Regulatory Commission in PacifiCorp v. Reliant Energy Services, Inc., Morgan Stanley Capital Group, Inc., Williams Energy Marketing & Trading Company, El Paso Merchant Energy, L.P. (Docket Nos. EL02-80-000, EL02-81-000, EL02-82-000, EL02-83-000). (2003).

Interpretation and calculation of benchmark prices for long-term power contracts

Testimony presented on behalf of the California Public Utilities Commission and Electricity Oversight Board before the Federal Energy Regulatory Commission in Public Utilities Commission of The State of California v. Sellers of Long Term Contracts to the California Department of Water Resources and California Electricity Oversight Board, v. Sellers Of Energy And Capacity Under Long-Term Contracts With the California Department of Water Resources (Docket No. EL02-60-003 and Docket No. EL02-62-003) (2003).

Appropriate natural gas price to use for calculating power refunds

Declaration presented on behalf of the California Parties before the Federal Energy Regulatory Commission (Dockets EL00-95-004, EL00-95-005, EL00-95-019, EL00-95-031, EL00-98-004, EL00-98-005, EL00-98-018, EL00-98-030, EL01-10-000, EL01-10-001) (2001).

Damages associated with Enron's market manipulation and fraud

Affidavit presented on behalf of Snohomish County Public Utility District in Enron Corporation (Case No. 01-16034) before the United States Bankruptcy Court, Southern District of New York (2006).

Expert report on behalf of Snohomish County Public Utility District in Public Utility District No. 1 of Snohomish County, Washington v. Citigroup, Inc., et al., before the United States District Court, Southern District of Texas (2006).

## **Generation siting**

Testimony on behalf of the Owners Committee on Electric Rates (OCER) before the New York State Board on Electric Generation Siting and the Environment - Application of TransGas Energy Systems LLC, for a Certificate of Environmental Compatibility and Public Need to Construct and Operate a 1,100 Megawatt Combined Cycle Cogeneration Facility in the Borough of Brooklyn, New York. (Case 01-F-1276) (2003).

## **Hydro-electric asset divestiture**

Testimony on behalf of Humboldt County, California, before the California Public Utilities Commission -- Application of Pacific Gas and Electric Company to Market Value Hydroelectric Generating Plants and Related Assets Pursuant to Public Utilities Code Sections 367(b) and 851 (1999).

## **Market design**

Testimony on behalf of the Connecticut Department of Public Utility Control, the Connecticut Office of Consumer Counsel, Richard Blumenthal, Attorney General the State of Connecticut and Southwestern Area Commerce and Industry Association of Connecticut, before the Federal Energy Regulatory Commission in the matter of Devon Power, LLC, et al. (Docket No. ER03-563-030) (2005).

Affidavit on behalf of the City of New York before the Federal Energy Regulatory Commission in the matter of New York Independent System Operator, Inc. (Docket No. ER03-647) (2003).



### **Determination of planning (installed) reserve margins**

Affidavit on behalf of the Connecticut Office of Consumer Counsel; Richard Blumenthal, Connecticut Attorney General; the Vermont Department of Public Service; the Vermont Public Service Board; the Rhode Island Public Utilities Commission; the New Hampshire Public Utilities Commission, and the Connecticut Light and Power Company by its agent Northeast Utilities Service Company before the Federal Energy Regulatory Commission in the matter of ISO New England Inc. (Docket No. ER-5-715, 2005/2006 Power Year Installed Capacity Requirements) (Objective Capability Values) (2005).

### **Prudence of utility power acquisition**

Testimony presented on behalf of the Nevada Attorney General's Bureau of Consumer Protection in the matter of the Application of Nevada Power pursuant to A.B. 369 as enacted by the 2001 Nevada Legislature for authority to establish a Deferred Energy Accounting Adjustment (DEAA) rate to clear purchased fuel and power costs of \$922 million accumulated between March 1, 2001 through September 30, 2001 from its deferred energy account balance over three years, to recalculate its Base Tariff Energy Rate (BTER) to reflect anticipated ongoing purchased fuel and purchased power costs, and for other relief properly related thereto (2003).

Testimony presented on behalf of the Nevada Attorney General's Bureau of Consumer Protection in re Application of Sierra Pacific Power Corporation for authority to establish a Deferred Energy Accounting Adjustment (DEAA) rate to clear purchased fuel and power costs of \$205 million accumulated between March 1, 2001 through November 30, 2001 from its deferred energy account balance to recalculate its Base Tariff Energy Rate to reflect anticipated ongoing purchased fuel and power costs, and for other relief properly related thereto (2003).

### **Cost analysis and rate design**

Testimony on behalf of the Owners Committee on Electric Rates (OCER) before the New York Public Service Commission Case # 00-E-1208 - Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc.) For Electric Service (Case 04-E-0572) (2004).

Testimony on behalf of the Owners Committee on Electric Rates (OCER) before the New York Public Service Commission Case # 00-E-1208 - Proceeding on Motion of the Commission in the Matter of Consolidated Edison Company of New York, Inc.'s Plans for Electric Rate Restructuring with Respect to Service Provided in Westchester County (2000).

Testimony on behalf of the Owners Committee on Electric Rates (OCER) before the New York Public Service Commission Case 99-S-1621 - Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Steam Service (1999).

Testimony on behalf of Public Service Company of New Mexico before the New Mexico Public Utility Commission, in the matter of the application of and complaint by Residential Electric, Incorporated, vs. Public Service Company of New Mexico (Case No. 2867) and in the matter of the application of Residential Electric, Inc. for a Certificate of Public Convenience and Necessity (Case No. 2868) (1998).

### **Power contracts and damages**

Testimony presented on behalf of North Star Steel Company before the United States Court of Claims – North Star Steel Company, v. the United States (No. 00 238C) (2005).

Testimony presented on behalf of Hydrocarbon Generation, Inc., before the Superior Court of the State of New York, Cattaraugus County in the matter of Hydrocarbon Generation, Inc., and Allegany Limited Partnership v. Niagara Mohawk Power Corporation (2001).

Testimony presented on behalf of the Norcon Power Partners before the United States District Court for the Southern District in the matter of Norcon Power Partners v. Niagara Mohawk Power Corporation (1999).

Testimony on behalf of Imperial Irrigation District before the Superior Court of the State of California, County of San Bernardino, in the matter of Coachella Valley Water District v. Imperial Irrigation District (1999).

#### **Commercial contract litigation**

Testimony (jury) presented on behalf of Corbin, Inc., before the Superior Court of the State of California in the County of Monterey. Doyle and Schmidt v. Corbin (2000).

#### **TESTIMONY AS STAFF OF THE NEW YORK PUBLIC SERVICE COMMISSION**

##### **Power plant and transmission (electric and gas) siting**

Case 80010 - Application of Halfmoon Cogeneration Project for a Certificate of Environmental Compatibility and Public Need pursuant to Article VIII of the Public Service Law.

Case 88-T-132 - Empire State Pipeline (May 1989).

Case 70126 - Power Authority of the State of New York - Marcy-South 345 KV Transmission Facility (August 1983).

##### **Energy security: conversion of oil-fired generating units to coal**

New York State Energy Master Plan and Long Range Electric & Gas Report.

Case 29083 - Central Hudson Gas & Electric Corporation - Danskammer Coal Conversion (August 1985).

Central Hudson Gas & Electric Corporation - Application No. UPA 2083-0544 - Danskammer Coal Conversion (August 1984).

Long Island Lighting Company - UPA #10-82-0350 - Port Jefferson Coal Conversion.

Consolidated Edison Company of NY, Inc. - UPA #20-81-0002 - Ravenswood Coal Conversion; UPA #20-81-0009 - Arthur Kill Coal Conversion.

##### **Determination of Avoided Costs: used as basis for paying renewable generation and qualifying facilities under the Public Utilities Regulatory Policies Act of 1978**

Case 92-E-0508 - Methods for Calculation and Payment of Avoided Generation (May and June 1993).

Case 29670 - Niagara Mohawk Power Corporation (April 1988).

Cases 29674-5-6 - Rochester Gas & Electric (December 1987).

Cases 29541-42 - New York State Electric & Gas Corporation (July 1987).

Case 29484 - Long Island Lighting Company (May 1987).

Case 29433 - Central Hudson Gas & Electric Corporation (January 1987).

Case 29426 - Rochester Gas & Electric Corporation (December 1986).

Case 29327 - Niagara Mohawk Power Corporation (August and September 1986).

Case 29195 - Central Hudson Gas & Electric Corporation (January 1986).

Cases 29069-70 - Niagara Mohawk Power Corporation (August 1985).

Case 29029 - Long Island Lighting Company (August 1985).

**Electric ratemaking: utility regulation, cost of service studies, incentive regulation, prudence evaluations**

Case 96-E-0891 - New York State Electric & Gas Corporation's Plans for Electric Rate/Restructuring Pursuant to Op. No. 96-12 (March and May 1997).

Cases 93-E-1075, 93-E-0912 - Generic FAC/Buyback Rates and Long-Run Avoided Costs (June 1995).

Case 94-E-0334 - Consolidated Edison Company of NY, Inc. (September 1994).

Cases 94-E-0098, 94-E-0099, 94-G-0100 - Niagara Mohawk Power Corporation (August 1994).

Cases 88-E-081 & 92-E-0814 - Petitions for Approval of Curtailment Petitions (March 1993).

Case 91-E-0462 - Consolidated Edison Company of New York, Inc. (Great whale) (September 1991).

Case 90-E-1185 - Long Island Lighting Company (May 1991).

Cases 29189-91 - Rochester Gas & Electric Corporation (December 1985).

Case 28824 - New York State Electric & Gas Corporation (September 1984).

Case 28798 - Niagara Mohawk Power Corporation (August 1984).

Case 28525 - Niagara Mohawk Power Corporation (August 1983).

Case 28211 - Consolidated Edison Company of NY, Inc. (August 1982).

Case 27741 - Fuel Adjustment Clause (July 1982).

Case 28252 - Shoreham Ratemaking Principles.

**Water rates: methods of reflecting salt water intrusion and VOC contamination in rates**

Case 89-W-062 - Jamaica Water Supply Company (August 1989)

Case 29268 - Jamaica Water Supply (September 1986)

**SERVICE**

2006-2007 Volunteer, Advisor and negotiator for the City of Santa Cruz School System for contracting and acquisition of solar photovoltaics

2001-2004 Sponsor, Journal of Regulatory Economics.

2001 Assistant Den Leader, Cub Scouts.

2001-2005 Team Sponsor, Santa Cruz Youth Soccer.

1999-2001 Board Member, Chair of Finance Committee, Temple Beth El, Santa Cruz, California.

1992-1995 Board Member, Temple Berith Shalom, Troy, New York.

1988-2005 Member, Organizing Committee, Center for Research on Regulated Industries, Rutgers University.

1969-71 Secretary, Rockville Center Environmental Committee, Committee reporting to Village Council. Developed one of the first post WWII municipal recycling programs in Metropolitan New York.